

Appln. No. 10/765,601

Amdt. Dated January 18, 2006

Reply to Office Action of November 28, 2005

**AMENDMENTS TO THE ABSTRACT:**

Please amend the abstract as follows:

~~In reproduction from a magneto-optical recording medium by the domain wall displacement detection method, it is possible to avoid occurrence of ghost signals and to improve dropout, and moreover design of magnetic layers is made easy. A configuration is adopted having at least, A magneto-optical recording medium includes in order from the side of incidence of laser light for reproduction; a first magnetic layer (reproduction layer) 11 constituting a reproduction layer, a second magnetic layer (control layer) 12 constituting a control layer, a third magnetic layer (blocking layer) 13 constituting a blocking layer, and a fourth magnetic layer (recording layer) 14 constituting a recording layer, which if the having respective Curie temperatures thereof are  $T_{C1}$ ,  $T_{C2}$ ,  $T_{C3}$  and  $T_{C4}$ . The Curie temperatures of the layers satisfy the relations  $T_{C1} > T_{C3} > T_{C2}$  and  $T_{C4} > T_{C3}$ . At the same time, if In addition, the magnetic anisotropy of the second third magnetic layer  $K_{u3}$  is  $K_{u2}$  and greater than that of the magnetic anisotropy of the third second magnetic layer  $K_{u2}$  is  $K_{u3}$ , the relation  $K_{u3} > K_{u2}$  is satisfied. A configuration is adopted in which a magnetic domain wall in the first magnetic layer 11 in front of the spot irradiated by the reproduction light on the optical recording medium in the direction of travel is displaced toward the peak temperature portion occurring in the proximity of the center of the reproduction light spot due to irradiation by reproduction light, so that a recorded domain is expanded, and in addition, Displacement in the spot direction of a domain wall in the first magnetic layer 11 behind the reproduction light spot in the direction of travel is~~

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suppressed; moreover, ~~the~~ The second and magnetic layer 12 and the third magnetic layers ~~layer~~

~~13~~ control the magnetic exchange coupling between the first ~~magnetic layer 11~~ and the fourth

magnetic layers ~~layer 14~~.

**ABSTRACT:**

A magneto-optical recording medium includes a first magnetic layer (reproduction layer), a second magnetic layer (control layer), a third magnetic layer (blocking layer), and a fourth magnetic layer (recording layer) having respective Curie temperatures  $T_{C1}$ ,  $T_{C2}$ ,  $T_{C3}$  and  $T_{C4}$ . The Curie temperatures of the layers satisfy the relationships  $T_{C1} > T_{C3} > T_{C2}$  and  $T_{C4} > T_{C3}$ . In addition, the magnetic anisotropy of the third magnetic layer  $K_{u3}$  is greater than that of the second magnetic layer  $K_{u2}$ . A magnetic domain wall in the first magnetic layer in front of the spot irradiated by the reproduction light in the direction of travel is displaced toward the peak temperature portion so that a recorded domain is expanded. Displacement in the spot direction of a domain wall in the first magnetic layer behind the reproduction light spot in the direction of travel is suppressed. The second and third magnetic layers control the magnetic exchange coupling between the first and fourth magnetic layers.